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ABSTRACT

Despite many service-learning programs that are now in practice, the empirical assessment of their effectiveness is sparse, due in part, to the difficulty in identifying a common indicator to measure effectiveness. In order to bolster the empirical assessment of these programs, evaluation of one such service-learning program is presented here. Empirical data, collected from 187 elementary and secondary school students, were analyzed. The elementary school students were split into treatment and control groups based on their involvement in a greenhouse construction project. At the high school level, two experimental groups were each characterized by special tutoring and student service to a historical society. Control groups were used and a self-esteem inventory was adopted to assess the effect of each service-learning project. The results indicate no significant gender differences among the three groups although the special tutoring program was more effective than the greenhouse construction and the historical project in improving student self-esteem and academic performance. The differences in self-esteem enhancement also hinged on student age and community support. Apparently, the longer the service-learning and the older the students, the better the results. (RJM)

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Running head: SERVICE-LEARNING AND SELF-ESTEEM

**An Empirical Assessment of Self-Esteem Enhancement
in A CHALLENGE Service-Learning Program**

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Abstract

Empirical data collected from a total of 187 elementary and secondary school students were analyzed in this article to assess enhancement of student self-esteem in a service-learning program. The elementary school students were split into treatment and control groups based on their involvement in a greenhouse construction project. At the high school level, two experimental groups were each characterized by Zoophonics tutoring and student service to the Delano Historical Society. Control groups were identified equivalent to these treatment groups. Coopersmith self-esteem inventory and its school-academic subscales were adopted to assess the effect of each service-learning project. While no significant gender differences were found among the three experiments, the Zoophonics tutoring was more effective than the greenhouse construction and Delano history projects in improving student self-esteem and academic performance. Empirical guidelines were developed based on these findings to further enhance the existing service-learning projects.

**An Empirical Assessment of Self-Esteem Enhancement
in A CHALLENGE Service-Learning Program**

Service learning has been an innovative approach to improve school practice across the nation (e.g., Conrad & Hedin, 1989; Crossman, 1989; Krug, 1991; Patterson, 1987). Following the former President George Bush who signed the National Community Service Act in 1990, President Clinton endorsed the National Community Service Trust Act in 1994 (Zoo-phonics News, 1996). In response to the federal initiative, the California Department of Education supported the Children and Adults Living, Learning, Nurturing and Growing through Experience (CHALLENGE), a K-12 service-learning program at Delano, California.

Despite many service-learning programs in practice, Middleton (1993) reported that the empirical assessment of their effectiveness was sparse in the existing research literature. In part, this was because service-learning was integrated in a variety of school-based projects at various grade levels. Thus, it was difficult to identify a common indicator to measure the effectiveness.

While specific measurement of student achievement varied across school grades and programs, several self-esteem indicators proposed by Coopersmith (1967) could be employed to reflect general academic performance (Table 1). Because the self-esteem assessment was not strictly confined by students' grades and individual programs, the purpose of this study was to assess the effectiveness of the CHALLENGE program in terms of enhancement of student self-esteem. It is expected that this general approach of self-esteem assessment can be employed to evaluate similar service learning programs at other locations.

Table 1 inserted around here

The CHALLENGE Program

The CHALLENGE program coordinated several service-learning projects at the Delano unified elementary and secondary school districts in California. The elementary school students were split into treatment and control groups according to their involvement in a greenhouse construction project. At the high school level, two experimental groups were characterized by Zoophonics tutoring and student service to the Delano Historical Society, respectively.

A common feature shared by these three experimental groups was the integration of community service in academic curriculum. For instance, the Zoophonics tutoring began with student training in Zoo-phonics and child development in a 10th grade class. The tutoring was further supported by resources at a local elementary school, including elementary school teachers' consulting service on how to fulfill their positions as role models for the younger kids. As a result, the service-learning strategy has reduced disciplinary problems and improved academic performance in the 10th grade class. According to a report in the Zoo-Phonics News (1996 Spring),

The high-schoolers are shining as Zoo-phonics tutors. They have a reason to enjoy and a recipe for personal success. They are realizing their worth as role models and consistently prove that young people are "viable resources" who can "contribute to their community." The elementary students are learning and developing rapidly with Zoo-phonics. (p. 6)

Similarly, another 9th grade class teamed with the Delano Historical Society to improve the

Delano Historical Museum, a project much needed in this community. These students wrote historical stories for the Adult Literacy Council, and restored old farm equipment and a 19th century home. Meanwhile, the CHALLENGE program also coordinated a group of elementary school students in a greenhouse construction project. In addition to raising money and collecting materials, these students used their knowledge in science to plant gardens and give tours to visitors. In all three experimental groups, the service-learning strategy was well integrated in academic program, and helped students to enhance their self-esteem through different types of community service.

Although a program like CHALLENGE has expanded student experience beyond the traditional classroom, many parents and educators were more interested in its impact on student achievement. In the related research literature, self-esteem was identified as an important outcome variable to improve students' academic achievement and personal confidence to meet their civic responsibilities in the future (e.g., Cialdini, Eisenberg, Shell, & McCreath, 1987; Fertman & Chubb, 1990; Gaspard & Burnett, 1991). Many researchers reported the use of the Coopersmith's (1967) self-esteem inventory, including the school-academic subscale (Table 1), at K-10 grades (e.g., Bernhoft, 1987; Fling & McKenzie, 1982; Moore, 1991; Thomas-Brantley, 1988). Accordingly, the Coopersmith (1967) self-esteem index and the school-academic subscale (Table 1) were used in this study to assess the enhancement of student self-esteem in the CHALLENGE service learning program.

Research Questions

Proctor (1992) stressed "the need for specialized research into the different kinds of school-based community service programs" (p. 1). The specific research questions that guide

this program evaluation are:

1. Are there any significant differences in students' self-esteem between the service-learning groups and their non-service learning counterparts?
2. For each of the service-learning projects, are there any gender differences in self-esteem enhancement?
3. What do these results suggest to improve similar service-learning programs in the future?

Methods

Empirical data collected from a total of 187 Delano elementary and secondary school students were analyzed in this article to assess the effectiveness of the CHALLENGE program. For each service learning class, an equivalent class was selected from the same or similar schools to form a control group. The equivalency of students was established through reflective discussions between the CHALLENGE staff and teachers of the participating schools.

Based on the test booklets for the self-esteem inventories (SEI) and the school-academic (SA) subscale (<http://www.ccinet.ab.ca/psychometrics/sesteem1.htm>), the SEI and SA scores were computed for each of the 187 students. According to Johnson (1983),

Regression analyses indicated that the Coopersmith Self-Esteem Inventory has convergent validity with regard to the Piers-Harris Children's Self-Concept Scale and the Coopersmith Behavioral Academic Assessment Scale, has discriminant validity with regard to the Children's Social Desirability Scale, is sensitive to differences in achievement level, and is internally consistent. (p. 907)

Independent sample t tests were employed to examine the score differences between each pair of treatment and control groups. Equity of the service-learning effect between male and female groups was further assessed by an independent sample t test within each treatment

group. Interpretation of these findings was based on student grades and program characteristics. Empirical guidelines were further developed to enhance the existing service-learning projects.

Results

Results from t tests to examine differences between each pair of treatment and control groups were listed in Table 2.

Table 2 inserted around here

Apparently, only the Zoophonics tutoring has caused significant improvement in student self-esteem and academic performance at $\alpha = .05$ (Table 2). For the Delano Historical Society project, although the mean scores were higher in the treatment group, the difference was insignificant at $\alpha = .05$ (Tables 2 & 3).

Table 3 inserted around here

Table 3 also presented mixed results for the greenhouse construction project. Students in the treatment group scored higher on the self-esteem scale. On the school-academic subscale, the mean score of the control group was slightly higher. However, none of the differences reached .05 significant level. Consequently, no substantial gaps were found between the treatment and control groups in terms of both SEI and SA indexes.

Table 4 inserted around here

Inspection of Table 4 showed insignificant gender differences in each of the three service-learning groups.

Discussion

While each service-learning approach presented opportunities of expanding student experience, the differences in self-esteem enhancement hinged on student age, the feature of the program, and the community support. The empirical results indicated that the greenhouse project in elementary school was less effective than the other two high school projects. Between the two high school projects, Zoophonics tutoring has resulted in larger improvement than the historical society activities.

It should be noted that in a line with these effect variations are differences in students' grades and project durations (Table 5).

Table 5 inserted around here

Apparently, the longer the service-learning and the older the students, the better the results (Tables 2, 3, & 5). In addition, little gender differences were found in these service-learning projects (Table 6). Those findings can be used by administrators in providing program directors with appropriate guidelines, such as the following, to further enhance service-learning projects:

1. Service-learning should be advocated more enthusiastically in secondary schools than in elementary schools;
2. Topics of service-learning should be pertinent to the regular academic programs;
3. Feasible and interesting projects should be developed to match both the community needs and student cognitive levels;
4. Sufficient time and community resources should be designated to expand student experience beyond the school environment;
5. In addition to specific technical skills, service-learning should focus on more general outcome variables, such as self-esteem and the understanding of civic responsibility, to facilitate student long-term transition from school to work.

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Table 1

Coopersmith's School-Academic Subscale

Item number*	Content		
7	I find it very hard to talk in front of the class	-- Agree	Disagree
14	I'm proud of my school work	-- Agree	Disagree
21	I'm doing the best work that I can	-- Agree	Disagree
28	I like to be called in class	-- Agree	Disagree
35	I'm not doing well in school as I'd like to	-- Agree	Disagree
42	I often feel upset in school	-- Agree	Disagree
49	My teacher makes me feel I'm not good enough	-- Agree	Disagree
56	I often get discouraged in school	-- Agree	Disagree

*The item numbers correspond to the numbers used in Coopersmith Self-Esteem Inventory.

Table 2

T Tests to Examine the Difference Between Treatment and Control Groups

Service-learning	Self-esteem inventory	School-academic subscale
Zoophonics tutoring	$t(76) = 2.84, p < .05$	$t(76) = 2.91, p < .05$
Delano historical society	$t(59) = 1.08, p > .05$	$t(59) = 1.86, p > .05$
Greenhouse construction	$t(46) = 1.82, p > .05$	$t(46) = -0.89, p > .05$

Table 3

Descriptive Statistics for the CHALLENGE Service-Learning Projects

Group	<u>Self-esteem inventory</u>		<u>School-academic subscale</u>	
	Mean	Standard deviation	Mean	Standard deviation
<u>Zoophonics tutoring</u>				
Treatment	73.30	11.93	5.51	1.30
Control	64.74	14.66	4.66	1.28
<u>Delano historical society</u>				
Treatment	70.74	15.50	5.26	1.45
Control	66.61	12.73	4.57	1.38
<u>Greenhouse construction</u>				
Treatment	69.43	17.37	5.46	1.48
Control	60.90	13.76	5.85	1.50

Table 4

T Tests to Examine the Gender Difference within Each Treatment Group

Service-learning	Self-esteem inventory	School-academic subscale
Zoophonics tutoring	t (41) = -1.54, p > .05	t (41) = -0.68, p > .05
Delano historical society	t (36) = 0.84, p > .05	t (36) = 0.72, p > .05
Greenhouse construction	t (26) = -1.60, p > .05	t (26) = -1.02, p > .05

Table 5

The Duration of Service-Learning

Service-learning	Student grade	Duration
Zoophonics tutoring in language skills	10	1 year
Service to the Delano Historical Society	9	1 semester
Greenhouse construction months	4-8	2